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Barriers to Risk Management Process Adoption: A Qualitative Study of Project-Based Construction Companies in Iraq

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Abstract

Considering the high level of uncertainties in the construction market in Iraq, Risk Management Process (RMP) is a key success factor in achieving construction projects. However, the majority of Iraqi construction companies have low maturity in practicing it. Decades of command economy have strictly bound Iraq's market to the state. For their significant role in reconstruction projects, construction companies have to receive great attention to develop their managerial capacities. Therefore, this research is an attempt to contribute to finding new insights into risk management practice in the construction industry in Iraq; to fill the existing gap in risk management studies; and to set up a basis for future research. In-depth interview method is followed for data collection, and grounded theory is pursued for data analysis and theory generation. The results of the study identify National Regulations concerning Company Registration, Public Procurement, and Investment as main barriers affecting opportunities for growth and development of construction private companies. The current business situation and government interference in construction industry impose a context more appropriate for small and medium-sized enterprises. Consequently, small and medium-sized companies adapt to the high level of uncertainties of the external environment by using small and flexible structure, low level of specialization, and limited benefits of division of labor, which makes the practice of a formal process of Project Risk Management unfeasible in their projects. Furthermore, the research results highlighted additional categories of obstacles such as limited learning from exposure to experiences from advanced foreign companies that refrain from investing in Iraq due to the critical security conditions, the low priority construction industry has in the government spending, as well as other infrastructure barriers such as electricity provision, and poor transportation networks.

Key words: Risk management, grounded theory, construction, business in Iraq, project management, and qualitative analysis.

**Bariery w przyjmowaniu procesu zarządzania ryzykiem:
Badanie jakościowe firm budowlanych prowadzących projekty w Iraku**

**Barriers to Risk Management Process Adoption:
A Qualitative Study of Project-Based Construction Companies in Iraq**

Streszczenie

W związku z wysokim poziomem niepewności na rynku budowlanym w Iraku, Proces Zarządzania Ryzykiem jest kluczowym czynnikiem osiągnięcia sukcesu na tym rynku. Niestety jednak znaczna większość irackich firm budowlanych nie wdraża Procesu Zarządzania Ryzykiem przy realizacji swoich projektów. Lata socjalistycznej polityki gospodarczej doprowadziły do mocnego powiązania gospodarki z państwem. Ze względu na znaczącą rolę projektów związanych z odbudową i rekonstrukcją, przedsiębiorstwa budowlane powinny zwrócić szczególną uwagę na rozwój kompetencji zarządczych i kierowniczych. Poniższa praca, poprzez wnikliwą analizę, przedstawia praktyki Zarządzania Ryzykiem na rynku firm budowlanych w Iraku, a także stara się wypełnić luki w wiedzy i świadomości dotyczącej znaczenia Zarządzania Ryzykiem. Tym samym przedstawia pewne podstawy, które mogą być pomocne przy planowaniu kolejnych projektów. Dogłębne wywiady pozwoliły zebrać ważne dane, podczas gdy ugruntowana teoria dąży do analizy danych i generowania teorii. Wyniki tej pracy pokazują istnienie Państwowych Regulacji, jako głównej bariery, która uniemożliwia wzrost i rozwój prywatnych przedsiębiorstw budowlanych. Obecna sytuacja biznesowa oraz rządowa ingerencja w przemysł budowlany sprawiają, że warunki są bardziej odpowiednie dla małych i średnich przedsiębiorstw. Wskutek tego małe i średnie przedsiębiorstwa przystosowują się do wysokiego poziomu niepewności otoczenia zewnętrznego, poprzez stosowanie elastycznej struktury, niskiego poziomu specjalizacji oraz ograniczonych korzyści z podziału pracy, co powoduje, że formalnie praktyki Procesu Zarządzania Ryzykiem w projektach są niewykonalne. Ponadto wyniki badań podkreśliły dodatkowe kategorie przeszkód, takie jak ograniczone czerpanie z doświadczenia zaawansowanych zagranicznych przedsiębiorstw, które wstrzymują się od inwestowania w Iraku z powodu krytycznych warunków bezpieczeństwa, niskiego poziomu inwestowania rządu w przemysł budowlany oraz inne bariery w infrastrukturze, takie jak dostarczanie energii elektrycznej oraz słabo rozwinięta sieć drogowa i transportowa.

Słowa kluczowe

Zarządzanie Ryzykiem, teoria ugruntowana, budownictwo, Irak, Zarządzanie projektami, badania jakościowe.

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Chapter One: Introduction

1.1 Introduction

The introduction chapter provides a background about historical, economic, and construction industry in Iraq; it facilitates a better understanding of the empirical data collected during this study; and presents a brief history and facts about Iraq including its population, and the civilizations that historically occupied it. Additionally, it also summarized events from the last few decades, when Iraq was subject to several wars, sanctions, and conflicts whose consequences caused economic stagnation and decreased provision of essential services. Some economic indicators have been presented to highlight the low rank that Iraq has in doing business index, which is maintained by the World Bank Group. Furthermore, the chapter included details about the private sector in Iraq that is marked by a small number of large companies, a medium number of Small and Medium-Sized Enterprises (SMEs) and a relatively large number of micro-enterprises. Issues like Corruption in the public entities, unstable security conditions, lack of free market practices, the absence of incentives to attract investors, and lack of transparency in the public procurement system are all factors negatively affected growth and development of private businesses in Iraq including the construction industry.

Final sections provide the development of the Problem Statement, the Purpose of the Study, the Research Questions, and the Importance of the Study

1.2 Background of the Study Problem

1.2.1 History and Facts

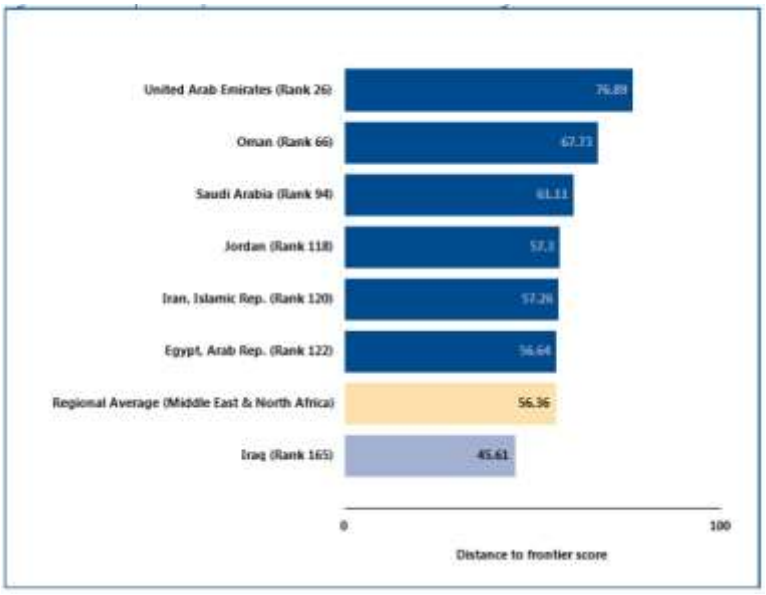
Iraq is a country located in the region of the Middle East. Its population is estimated at 37.20 Million, with a life expectancy of 70 years (The World Bank, 2017b). Iraq is considered among the youngest societies, with 50% of its population under 19 years of age (UNDP, 2014). Modern Iraq occupies the territory of ancient Mesopotamia, often referred to as “the cradle of civilization”; many early civilizations and cities, such as Sumeria, Akkadia, Assyria, Babylon, Ur and Nineveh were established there (UNDP, 2014).

During the last few decades, Iraq was faced with several wars, sanctions, and conflicts whose consequences caused economic stagnation and decreased provision of essential services. Recently, Iraq has slowly developed as a democratic state after the collapse of Saddam Hussein and the Ba’ath regime in 2003. Breaking down the authoritarian dictatorship and moving into a democracy, in a rich history country like Iraq, was a massive mission (UNDP, 2014).

1.2.2 Economic Background

Economically, the GDP of Iraq is 171.49 billion, and its GNI per capita (US$) is 5,870, as estimated by the World Bank for the year 2016 (The World Bank, 2017b). However, Iraq has a low rank (165 out of 190 countries) in the ease of doing business index as of the 2017 report. Accordingly, Figure 1 below shows Iraq’s relatively low rank on the index compared with some neighboring economies (The World Bank Group, 2011).

Figure 1: Iraq's Rank on the Ease of Doing Business Compared to Neighboring Economies



Source (World Bank Group, 2017)

The growth of the Iraqi economy is traditionally connected to achievement in the oil sector. Iraq's proven oil reserves are estimated at around 112 billion barrels, second only to Saudi Arabia (International Monetary Fund, 2003). The majority of government revenue (99%) is generated by the oil sector, while only 1% of Iraqis are employed in this industry. Employment among youth (15-24 years old) is 18%, and women comprise only 17% of Iraq's labor force. The overwhelming majority of Iraqi people (75%) refer to addressing poverty as the most urgent need. Corruption is widespread, as 95% of bribery incidents go unreported. Recently, 78% of Iraqis reported using mobile telephones (UNDP, 2014).

The Iraqi government adopted measures to diversify the economy over the five years between 2010 and 2014, while its main efforts are actually more focused on raising oil production. The national development plan gives priority to investments in oil, electricity, agriculture, transport, and communication. However, development plans and investors' interests were frequently hampered by issues such as security, corruption, and bureaucracy, which are encountered as major challenges to participation in rebuilding the damaged infrastructure and providing houses for the rapidly growing population (Foreman, 2013).

1.2.3 Construction Industry in Iraq

The unstable security conditions, fragile investor confidence, and a decline in government spending because of the severe drop in oil prices since 2014 are all factors influencing the construction industry in Iraq. Consequently, construction contracts in the Iraqi market dropped in real terms, from 19.0% (of the national budget) in 2014 to 7.3% in 2015 (CISION, 2016). Further, according to Business Monitor International, project delays are a reflection of the absence of institutional capacity, the lack of

coordination between federal and provincial authorities and prevalent corruption. Further, it notes that numerous foreign oil companies operating in Iraq are willing to invest in large infrastructure projects. However, the existing legal framework will hold the investment in the sector is passive (Business Monitor International, 2013). An international bidder in Iraq, as cited by (ANDREW ROSCOE, n.d.), mentioned, "Iraq's construction sector is still viewed as a risk by many potential investors. " He added, "A regulatory framework is important so investors know that if they give money to developers the projects will go ahead." Regarding anti-corruption solutions, "Corruption slows everything down," says John Turner[1]. "The Baghdad mayoralty has made a big effort to crack down on corruption and it is important that other agencies do the same." (ANDREW ROSCOE, n.d.).

1.3 Statement of the Problem

Risk Management Process (RMP) is a key success factor for project management in construction projects, particularly in the high range of uncertainties and complexity in the Iraqi business context. However, there is a lack of literature that assesses the current situation of Iraqi construction companies concerning RMP practice and the barriers to its adoption. Therefore, the current research is designed to contribute empirical in providing insights about this problem as and providing recommendations for future studies.

1.4 Purpose of the Study

General objectives:

- To find out new insights about risk management practice in the construction industry in Iraq.
- To fill the existing gap in the RMP literature in the Iraqi context, and to set out a basis for future studies.

Specific objective:

- To develop a conceptual framework that better interprets the current situation of the practice of risk management process as experienced by managers working in construction companies in Iraq and to identify barriers to effective risk management practices in the Iraqi construction industry.

1.5 Research Questions

The central question this research aims to address is:

What are the main barriers to Risk Management Process adoption among construction companies in Iraq?

[1] Director of Broadway Malyan, lastly contracted by the mayoralty of Baghdad among other international organizations for consultancy and supervision contracts.

This research also addresses the following additional questions:

1- What is the current context of risk and risk management process? Explained by identifying the most effective risk categories, and the current strategies practiced to mitigate their influence.
2- What are the barriers to RMP adoption on the project level?
3- What are the barriers to RMP adoption on the organizational level?
4- What are the barriers to RMP adoption on the external environment level?
5- How do the potential categories relate to each other?
6- What is the core category of barriers that all the other categories represents its dimensions?

1.6 Importance of the Study

The results of the research serve two groups of direct and indirect beneficiaries, as follows:

Benefits to direct beneficiaries:

1- Iraqi construction companies and companies from the neighboring countries working in similar contexts that are looking for improving their capabilities of Risk Management.
2- National and international professional and scientific organizations interested in developing project risk management capacities in Iraq.
3- Related public institutions, concerned about reforming the current business-related regulations and laws, and to secure effective quality and integrity practices in the construction industry.
4- Foreign investors interested in the construction market in Iraq

Benefits to Indirect beneficiaries:

Researchers interested in the literature concerning risk management and project management fields in the construction industry.

2 Chapter Two: Research Methods

2.1 Introduction

The research methods chapter includes the presentation of the theoretical paradigm, method, and procedures used to conduct the research. The post-positivism paradigm is used to find answers to the subject under study. Among different methods offered by this paradigm, the qualitative method is used due to the advantage of exploring new topics while searching for quality of data more than quantity. In-depth interviews are followed for data collection, while the grounded theory is applied to the data analysis and the theory generation. The chapter additionally goes through the role of the researcher while conducting different processes of the study. Furthermore, it discusses procedures used in data collection, including Thematizing, Designing, Interviewing, and Transcribing; as well as stages of data analysis that includes Memo Writing, Open Coding, Axial Coding, Selective Coding, and Theory Generation. Later, Verification and Ethical Considerations are demonstrated. Finally, this chapter ends by explaining Limitations encountered while conducting the research.

2.2 Data Collection

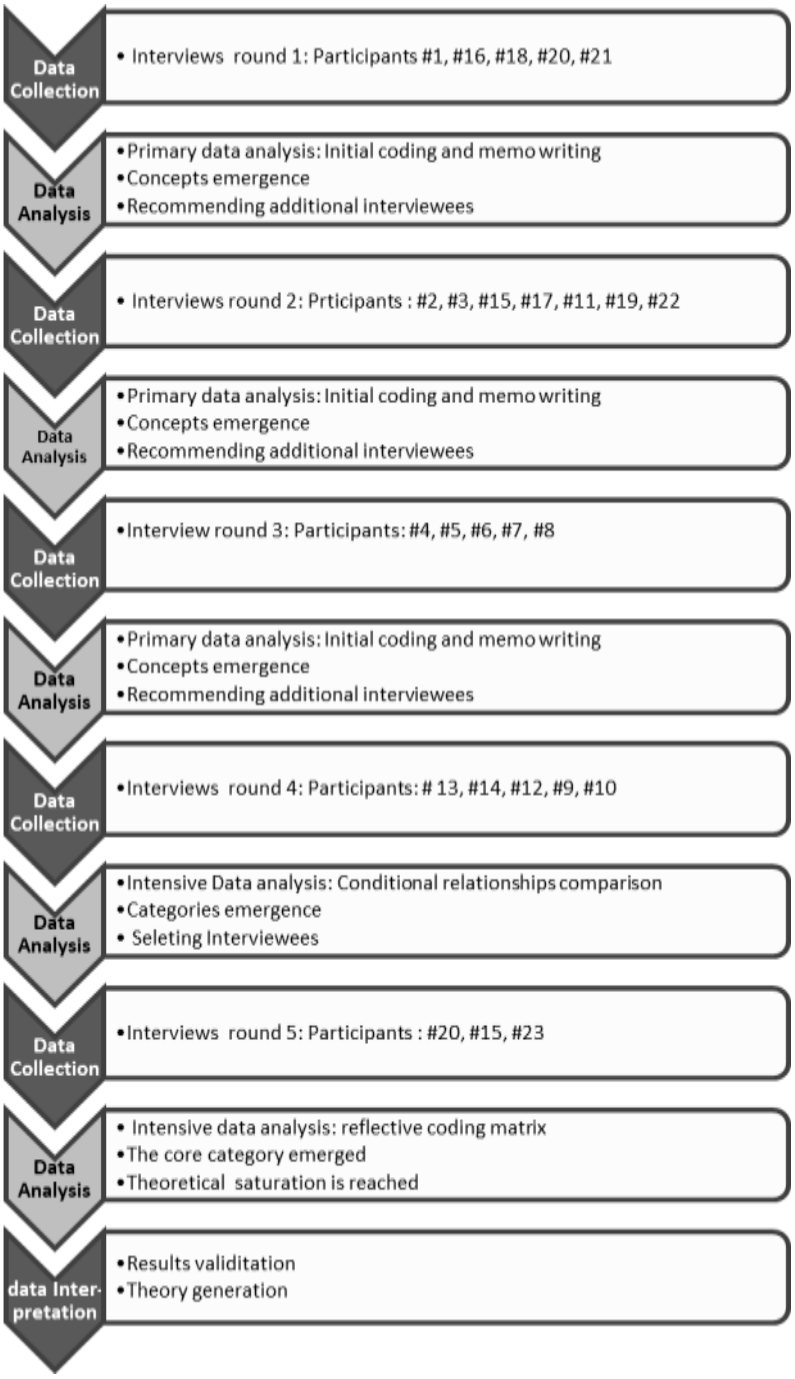
2.2.1 Introduction

Interviews, observations, and documents represent frequently used methods of data collection in qualitative research (Patton, 2002), which are hard to "crunch" using statistical tools. People's life experiences, occasions, or circumstances are frequently called "thick" data (Denzin, 1989). In this research, interviewing is selected as a sole method of collecting data. According to KVALE (1996), a qualitative research interview is defined as: "An interview whose purpose is to obtain a description of the lifeworld of the interviewee with respect to interpreting the meaning of the described phenomena." (Kvale, 1996 p.5) Furthermore, one explanation of why interviewing dominates as a research technique is simply that dialogue is the most popular way of gathering information about normal daily life (Kvale, 1996).

Specifically, the in-depth personal interview is used in the current study to explore a deep understanding of the respondents' experiences, feelings, opinion, and their perception of the subject phenomenon. The majority of qualitative researchers rely on the semi-structured or in-depth interview (Mason J. London, 1994); what's more, the in-depth interview is appropriate for a new subject that has never been studied before (List, 2005).

Though there is no standard procedure for conducting interviews, Kvale, (1996) recommends seven steps for interview preparation, namely: Thematizing, Designing, Interviewing, Transcribing, Analyzing, Verifying, and Reporting. In the data collection section, we explain the first four phases, while the remaining three phases will be explained in the next sections of this chapter. Figure 3, below demonstrates the development of the theory in result to the iterated processes of data collection and data analysis.

Figure 2: Sampling Method and Concept Generation



2.3 Data Analysis

2.3.1 Introduction

The course of this section presents the approach followed in the data analysis. Techniques such as Memo Writing, Coding (open coding, axial coding, and selective coding), Theory Generation, Verification were theoretically explained, along with

describing their implication in this study. These techniques are frequently repeated for each crunch of data is collected. The whole process is integrated and going forwards while developing the theory.

Following the context of each research, and the nature of its topic, in a qualitative research the data analysis relies more on the analyst insights than on specific tools; thus, qualitative analysis is closer to art than to science (Babbie, 2010). After stressing creativity in the data collection relying on semi-structured rather than structured interviews, again in the data analysis we customized our procedure relying on a variety of methods available under grounded theory. In grounded theory, Corbin and Strauss (1990) note some principles researchers need to consider during different stages of data collection and analysis. They stress that collecting and analyzing data are interrelated. The data analysis starts with giving conceptual labels (codes) to incidents that form the phenomenon under study. Later, those concepts are adjusted and abstracted continuously as the analysis precedes. Next, categories emerge by comparing concepts against similarities or differences. The data ought to be examined for regularities that lead ordering and integrating the data in a process that breaks down the phenomenon into a sequence of stages. The comparison is an important process as it assists in avoiding bias by inspecting concepts through collecting new data. What's more, hypotheses have to be developed concerning the connection between different categories. Those hypotheses also require being inspected by going back to the field when necessary. A theory is likely to be generated when the emergent categories relate to one another. Lastly, a wider environmental structure, including various conditions, such as economics, culture, or politics, should be considered in the analysis as well.

2.4 Summary

This chapter presents the methodology followed to provide answers to the research questions. The qualitative method, offered by post-positivist paradigm, is selected as most appropriate for its advantage in exploring a new topic that lacks inputs from similar studies. Data is collected by conducting in-depth interviews; different elements of the data collection are explained including Thematizing, Designing, Interviewing, and Transcribing. The data is analyzed using grounded theory utilizing many tools offered by this approach such as Memo Writing, Open Coding, Axial Coding, Selective Coding, and Theory generation. Additionally The chapter went through the Role of the Researcher in different phases of both the data collection and the data analysis; It also presented the tools used to verify the results; the ethical consideration was also explained; finally, the chapter ended by listing the limitation encountered across conducting the research.

3 Chapter Three: Literature Review

3.1 Overview

The objective of this chapter is to provide insights from the existing theoretical literature as an introduction, definition, and explanation of the topics and processes involved in the data analysis and discussion chapters. In addition, it presents evidence and findings of similar studies as a basement of comparison and discussion with the findings of the current research. Lastly, it determines possible gaps and limitations of the existing literature that have been addressed by the results of this study.

Taking into consideration this research is based on grounded theory, we developed the literature review chapter after finalizing the data analysis phase. However, reviewing findings from past studies has contributed in discussing and positioning the emerged theory in comparison with the existing literature. The structure of this chapter followed the same themes applied in the data analysis and reporting the findings, which are originally designed to allow clear categories of answers to the research questions. The presentation of the literature review starts with providing theoretical definitions of the main areas under the study, such as *project*, *project success*, *risk management*, and *construction.* Then we provide findings from previous empirical studies concerning categories of risk, risk management strategies practiced in a similar context, and barriers to risk management practice. We classified the barriers to RMP adoption by distinguishing those caused by project context, organizational context, or the external environment context. Accordingly, we discuss factors relate to project sizes and complexity on the project level. Moreover, we present findings linked to corporate governance practice, knowledge management and learning process, the connection between organizational size and specialization on the internal environment level. Further, we elaborate theoretical concepts concerning the role of regulations and laws and government intervention in the business environment as influential forces raised from the external environment.

3.2 Theoretical background

3.2.1 Introduction

Risk Management Process was intensively researched especially in the construction industry, which is described as a fragmented and complex environment due to its uniqueness and a large number of interacting parties involved within it. This section provides a theoretical background and definitions of the concepts used in the course of the research. It contributes to clarify the phases of risk management process and how it is integrated with other project management processes. It also shed light on the project success and risk management process role in its achievement. In addition, we identify popular methodologies and standards of project risk management that can help in assessing the maturity of risk management practiced in the target companies. Lastly, this part should outline the concept of the importance of RMP in the construction project.

3.2.2 Project

In general, literature agrees that the project involves a temporary work to produce a unique product/service, while they differ in considering it as an activity or an organization. Project management institute defines a project as "a temporary endeavor

undertaken to create a unique product, service, or result.", highlighting the temporary nature of a project, and the uniqueness of its product(s) (PMI, 2008). From the other side, Steiner (1969) emphasize a project as a temporary "organization", when he defines it as "an organization of people dedicated to a specific purpose or objective. Projects generally involve large, expensive, unique or high-risk undertakings which have to be completed by a certain date, for a certain amount of money, within some expected level of performance." Likewise, Turner (2009) changes his previous definition of a project as "a temporary endeavor" into "a temporary organization", to differentiate between a temporary task assigned to the routine organization and a temporary organization formed particularly to implement this task. Eventually, he described the project as "A temporary organization to which resources are assigned to do work to deliver beneficial change." highlighting three key concepts: A temporary organization; the resources and the work; and the beneficial change (Turner, 2009, p.2-3). Additionally, Turner classifies projects into runners (very familiar), repeaters (fairly familiar), strangers (unfamiliar), and aliens (totally new), moving from the familiar to the unknown projects (Turner, 2009).

3.2.3 Project Management

The novelty and the uniqueness of project's results require distinctive ways of working and dealing with uncertainty. All new ventures achieved in a progressively complicated technical, political, economic, and social conditions. This uncertainty introduces the central dilemma of project management. Surely, project management will be required to handle the complexities and risks of any inexperienced field. Project-based management is one of the strategies followed by organizations to achieve their development objectives. Therefore, there should be a strategy for undertaking the project and achieving its own objectives (Turner, 2009). Further, project objectives have to be defined and specified (Knoepfel, 1989)(Ireland & Shirley, 1986), and (Larson & Gobeli, 1989) as cited by (Williams, 1995). Furthermore, strategic planning characteristics can be efficiently integrated into a comprehensive PM framework, producing possibly valuable perceptions concerning the relationship of PM behaviors to ultimate project success (Papke-Shields & Boyer-Wright, 2017).

Project management is about dividing the project into segments, by activities, by time, and by cost (Williams, 1995). The project needs a plan, used as a framework to coordinate the allocation of people, materials, and money. This framework has to be flexible and expected for change during the project progress. Turner (2009) identifies seven functions to the project management: Managing the scope of work, organizing the project resources, managing the performance -or quality, managing cost, managing the time, managing the risk, and managing the stakeholders' commitment. For the same purpose, PMI identified nine "body of knowledge" areas: integration management, scope management, time management, cost management, quality management, human resource management, communication management, risk management, and procurement management (PMI, 2008).

Concerning project management processes, Turner (2009) suggests four processes: plan, organize, implement, and control; stressing that those processes are iterative (each phase reviewed to integrate with other phases). Accordingly, he refers to four project

phases: Proposal & initiation, design & appraisal, execution & control, and finalization & close-out. Likewise, PMI emphasizes that the process groups and the project phases are not the same, identifying five process groups: Initiation, planning, executing, monitoring & controlling, and closing (PMI, 2008). Additionally, Dinsmore and Cabanis-Brewin (2011) distinguished between the project and product lifecycle. As they introduce four phases of project life cycle: concept, development, implementation, and termination, vs. phases of the product lifecycle; feasibility, acquisition, operation and maintenance, and disposal. Rae and Eden (2000) argue that ineffective project management system along with other inefficient organizational procedures, or practices are contributors to uncontrollable project environment, and consequently are causes of project failure. Besides, they recommend that risk management should be incorporated into a framework that well identifies project objectives and effectively organizing project resources. Lastly, stressing the significant role of project management, the central reason for the failure in a project, in many cases, is not technical, but managerial. In particular, the problem is rooted in the selection of the right approach to the certain project (Sauser, Reilly, & Shenhar, 2009).

3.2.4 Risk Management

Concerning the definition of risk, Ansell and Wharton discussed the recent definitions of risk; Definitions mostly associate ''risk" to adverse outcomes resulted from the uncertain event, for instance, Fishburn considers an unfortunate event as "Risky", and Statman and Tyebjee define risk as "high probability of failure" (Ansell & Wharton, 1992; Fishburn 1984; Statman and Tyebjee 1984), as cited in (Williams, 1995). However, Chapman and Ward (2007) provide a new concept of *Risk* as (Uncertainty) that implies either threat or opportunity, stating Risk Management as, "It is about identifying and managing all the many sources of uncertainty that give rise to and shape our perceptions of threats and opportunities." Additionally, they present short-form definition, describing project risk as, "the implication of uncertainty about the level of project performance achievable." They explain that this is not an alternative definition to those defined by PMI or APM, but it attempts to highlight that managing risk should consider managing sources of project uncertainty about achievable performance that matters "significant". They also stress the influence of developing project objectives, which in their role affecting risk probability. Since, setting tighter objectives makes the project riskier (Chapman & Ward, 2007). Similarly, Project Management Institution PMI defines Risk in the project as, "an uncertain event or condition that, if it occurs, has an effect on at least one of the project objective" (PMI, 2008, p.275). According to PMI, both the perception of risk and risk tolerance in addition to other biases drives the risk attitude of individuals and groups toward risk. Similarly, The concept of risk is different from different points of view of the project's parties (Hartono, Sulistyo, Praftiwi, & Hasmoro, 2014). However, empirical findings often refer to the misconception of risk. March and Shapira (1987) identify several types of behaviors in which managers conceive risk and risk-taking in a way lead to orientating risk in different understanding than expected from a decision theory perspective. Those differences, in addition to other related evidence, resulted from other studies of individual and organizational choice, confirm that the risk-taking behavior in organizations would be incorrectly perceived comparing with the conventional conception of risk (March & Shapira, 1987).

Literature commonly referred to the importance of risk management as an essential part of achieving project objectives. Turner (2009) considers risk management as the essence of project management, due to the unique nature of project results. Likewise, Khameneh, Taheri, and Ershadi (2016) describe Risk Management as the key function of project-based organizations, and its ultimate objective is to create value for the corporation. In addition, drawing on findings of a literature review conducted by Akintoye and MacLeod (1997), Risk Management is essential to construction activities in minimizing losses and enhancing profitability due to construction risk influence on project objectives. Similarly, ignoring risk management among the different project stakeholders was the main cause of claims and disputes arose during achieving a number of construction projects in Chile (Palma, 2007) cited by (Serpella, Ferrada, Howard, & Rubio, 2014). Therefore, considering attributes such as attitudes to risk management process, its formality, allocated resources, and the phases integration practiced by contractors would significantly contribute to project success (Salawu & Abdullah, 2015). Lastly, project contract should efficiently identify the risk. Thus, parties who are liable for the risk are more likely to avoid it or mitigate it (Curtis, Ward, & Chapman, 1991; NEDO, 1982) cited by (Williams, 1995).

3.3 RM Context

3.3.1 Risk Categories

3.3.1.1 Summary

The reviewed empirical studies analyzed risk in construction projects in neighboring countries of Iraq including Kuwait and Jordan, and some other developing countries in Asia and Africa. They, in general, identify client-related risks as a primary risk in addition to the lack of technical and administrative skills possessed by the contractors. Furthermore, they also refer to external risks connect to delay and deficiencies caused by suppliers and unskilled workforces. Moreover, the reviewed literature highlights a correlation between project size and complexity, and risk.

Findings from our study provide new insights about the risk in the construction industry in Iraq, which was not covered previously by any of the reviewed researches. The results from our study agree with the majority of studies conducted in the neighboring countries in stressing the effect of the client-related risk. Additionally, this study distinguish a dominant kind of clients in the construction projects in Iraq that is the government. It provides a neutral analysis of the risk dimensions resulting from the contractor-client interrelationship during managing project risk by interviewing representatives from both sides. Thus, in addition to interviewing professionals from the private companies, the current study targeted several employees acting as seniors in project management and planning departments, working within two companies represent important suppliers of construction projects throughout all the cities in Iraq. In result, the data analysis reveals that in the Iraqi case, the probability of risk caused by the lack of cooperation from clients is high in most of the cases. The reasons connected to the legal framework of the public procurement process that deprives contractors from their rights to have at least equivalent position, as the client has, in managing their joint project. In result, uncertainties raised from procurement process, contract management and corruption, as well as lack of cooperation in project management

experienced from the governmental entities represent the main risk encountered by our participants. In addition, this study identifies another significant risk result from security-related issues. In such risk, deficiencies in national standards of contracting process commonly transfer their ownership to the contractor. In result, the projects experienced by our participants are still risky, even though they are of low complexity in term of project size and technologies.

3.3.2 Risk strategies

3.3.2.1 Summary

The reviewed literature reports low maturity of risk management practice in construction projects within several developing countries. However, a few studies used standard maturity models in reporting their assessment. Yet, the existing research studies neither provided a description to the level of risk management neither practiced by the construction companies in Iraq, nor identified strategies currently pursued by them to managing risk.

The importance of the current research involves the preliminary assessment it provides to the current situation of practicing risk management by construction companies operating in Iraq. It asserts the informal nature of dealing with risk by describing the context of mitigating the risk as explained by the research informants. The current strategies followed by the subject companies compared with the level of maturity offered by risk management literature, without literally adopting an individual model, due to the priorities of the current study that is mostly barriers-focused. Strategies such as casual reserves of time and cost, relying on experts' judgment, networking, and outsourcing were followed interactively and mostly after the risk occurs. Those characteristics along with the situation when there are no resources or plans individually allocated to risk management are evidence of the low maturity of risk management practice, which represents an important element this study contributes to addressing the existing gap in the literature.

3.4 Barriers from the Organizational Context

3.4.1 Summary

The literature lacks studies dedicated to investigating the internal structure of the Iraqi companies and its influence on the formality of different strategies and processes applied, with the exceptions of two surveys, conducted by the USAID and The World Bank, as previously presented, described the internal context of companies in Iraq. However, the companies targeted by these two surveys were not inclusively from the construction industry, and the analysis was not in relation to project and risk perspectives. In general, they referred to issues such as lack of corporate governance practice, informality, and lack of using technology in their activities. Additionally, studies on construction companies in the neighboring countries of Iraq and some other developing countries frequently referred to the lack of awareness of risk management disciplines and standards. They also highlighted the inflexible policies, change resistance, and lack of interest as barriers to RM practice. Lastly, the existing literature conducted in the neighboring countries of Iraq and other developing countries did not

adequately address the barriers connected to the nature of the project, its complexity, and to the categories of risks, it encounters.

Considering the quantities nature of the previous studies that identified the berries to RM practice, this study provides in-depth interviews and analysis to comprehensively contribute in founding out the internal dynamics affecting RMP practice instead of a mere list of barriers. It provides a wider explanation regarding organizational structure, knowledge management, and specialization within construction projects based on the participants' knowledge. Additionally, it shows the influence of the absence of clear organization strategy on practices such as PM and consequently on RM. The informality and lack of corporate governance practice lead to a simple structure, lack of access to finance, less exposure to the international standards and qualities, and lower opportunities for growth and development. It goes even deeper to present external forces that contribute to creating such patterns of companies as explained in the next section. Finally, concerning the barriers connected to the small size and the low technology of projects the subject companies traditionally involve, the rate of other risk explained by the participants suggest a necessity of process to manage the risk due to the high rate of unsuccessful projects. However, it is infeasible in the current context for reasons explained in section 5.2 Story Line.

3.5 Barriers from the External Environment Context

3.5.1 Summary

In summary, the existing literature refers a correlation between the external forces including Politics, Economics, Technology, and Regulation from one hand, and the practice of internal processes in companies from the other hand. Additionally, a study refers to the size of interest devoted by the government and other scientific institution to develop private companies in the construction industry.

Appropriately, the existing literature has not covered the construction industry specifically in Iraq. In addition, it does not refer to direct effect of the external forces on a risk management process. Furthermore, the literature refers more to "what" external forces than "how" they influence formal processes practiced by the private companies considering the quantitative nature of their results as we previously commented.

To address the existing gap, the current study stands out to present insights about the external environment and its direct influence on practicing (RMP) by the construction companies in Iraq. The key findings of this study identify the influence of business regulations on the internal structure of the private sector companies. In addition, it identifies which regulations are more influential than others and explains how they exactly affecting the practice of Risk Management Process, as explained in section (5.2 Story Line). Furthermore, the current findings explain the nature of the relationship between the contractors on one side and clients from the government on the other side that is dominating the context of the construction industry in Iraq. Lastly, this study interprets how variables from regulations and client policies, as external variables, affect the internal dynamics of the companies in the way that prevents private companies from adopting a formal process of Risk management.

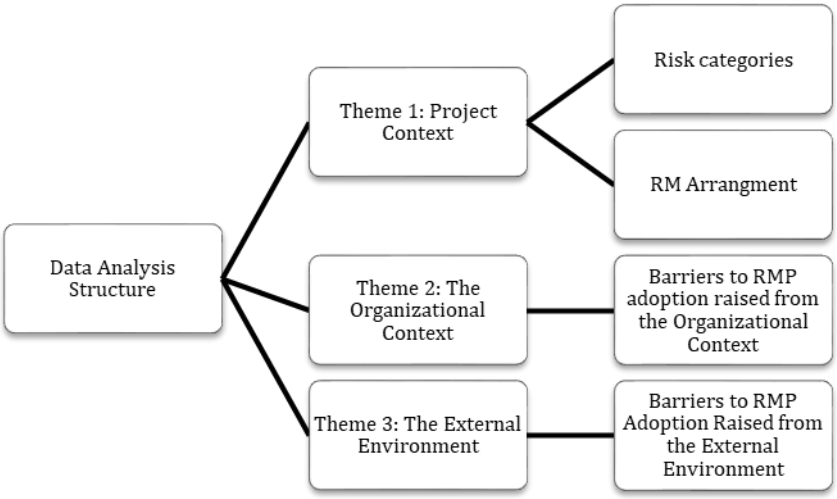
4 Chapter Four: Data Analysis and Results

4.1 Introduction

Risk Management Process RMP is a key process accounts for the identification and the mitigation of risk in construction projects, particularly with the high rate of uncertainties and complexity associated with this business in Iraq. It is uncertain to what extent of maturity Iraqi construction companies are practicing RMP in their projects. Therefore, the objective of this research is generally to develop a theory that better interprets the context of risk management in construction companies in Iraq, and to identify barriers to RMP adoption, as experienced by their owners and experts.

The structure of this chapter follows three themes to facilitate addressing the research's questions (see Figure 5). The first theme, Project Risk Context, explains the framework of risk management in terms of identifying Risk Categories encountered, and Risk Management Strategies practiced in the construction projects. The second theme pertains to the Barriers to RMP adoption, raised from the Organizational Context, while the third theme includes and barriers from The External Environment Context. The chapter ends with a conclusion that elaborates the emergence of the core category of barriers and explains its effect on the other categories of barriers.

Figure 3: The Themes of the Data Analysis



4.2 Project Risk Management Context

In this theme, Project Risk Management Context is presented in terms of identifying the categories of risk as encountered by the participants of this study. Additionally, it explains the current practice of risk management in the Iraqi context.

4.2.1 Summary

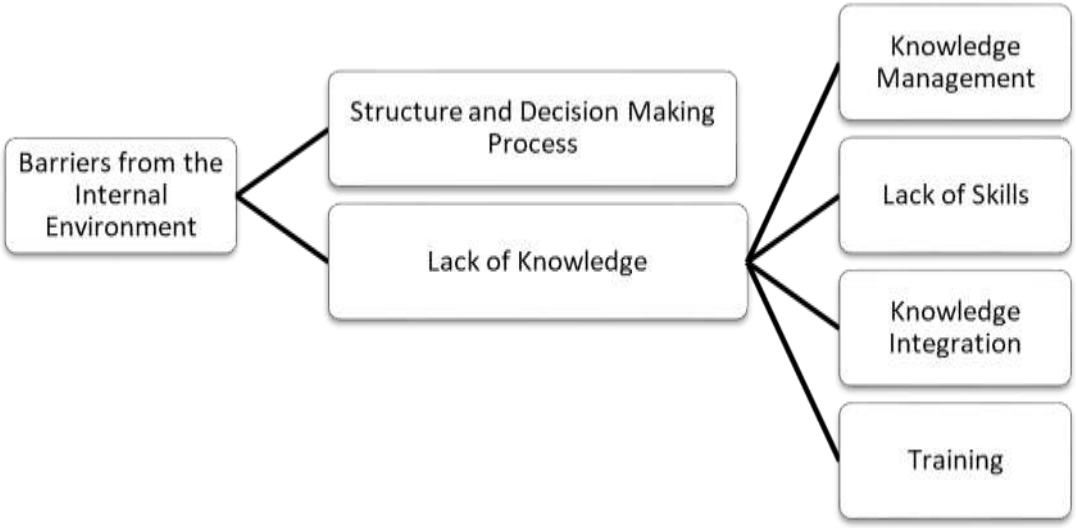
Based on the data analysis, the projects involved by the research participants encounter internal risks mostly raised from the Procurement System, and the Lack of Cooperation, while they face minor risks resulting from the Project Size and Complexity. In addition, external risks raised from the Contracting Regulations, Security-Related events represent the essential external risk to the projects, while other Economic Factors such

the exchange rate of the foreign currency are insignificantly affecting the projects' activities. Accordingly, the interviewees mention practices to mitigate the mentioned risk categories that include Adding Reserves, Expert Judgment, Outsourcing, Networking, and Insurance Companies. The reported RM practices characterized as interactive and informal, where no certain procedure, written plans or human resources were allocated for risk management.

4.3 Barrier raised from internal environment

We investigated the internal design of the subject companies to gain further insights regarding the barriers to RMP adoption resulting from the companies' lack of capacities. This section is exploring the registration and classification of the contracting companies according to the national regulations in Iraq. It also explains the structure and the distribution of the roles and responsibilities followed to organize and manage their human resources. Finally, it elaborates the influence of the lack of knowledge relating to the RMP. Figure 9 below shows those barriers and their dimentions as a result of the data analysis of the current study.

Figure 4: Barriers from the Internal Environment



4.3.1 Summary

We investigated the internal environment relying on our participants' experiences, looking so further insights influencing RMP practice. The barriers to RMP practice from the internal environment mostly resulted the lack of capacity characterizing companies' under the study, resulting from the Legal Form, Structure the Process, and the Lack of Knowledge. The contracting company, except the premium call that is unpopular, is eligible to apply to limited size of projects does not excess 15 billion Iraqi Dinar (approximately 13.6 M USD), which are still considered small projects. Additionally, they companies' owners shows their tendency to avoid visibility and to minimize their staff coping with lack of projects supply from the government. Further, lack of knowledge pertaining to RM is an additional barrier to RMP practice due to deficiencies in the Knowledge Management, Lack of Skills and Human Resources Management, the absence

of the Knowledge Integration with advanced companies, and lastly the lack of interest in Training.

4.4 Barriers imposed by external environment

4.4.1 Summary

We classified the barriers resulted from the external environment into four categories. The influential berries mostly raised by the Regulations, the Government Policies, the Security Conditions, and the lack of influence of the Academic and Professional Institutions. In general, the business regulations provide a preference to the government in awarding and managing construction projects. Yet, the public procurement system provides excessive authority to clients from the government to control and finance the construction projects. Consequently, project management professionals in the private companies lack the opportunity to plan and practice RM in their joint projects with the government. Further, the investment regulations restricted by the bureaucratic processes decrease its potentials for improving the private sector opportunities to propose and manage their own projects. Additionally, obstacles faced by the foreign investors reduce the possibilities of the exposure to advance project management practices such as RM. Further, the Government Policies of relying on SOE and restricting Access to Finance are additional barriers to contracting companies to thrive and develop; they, consequently, contribute in founding small size companies with limited structure and capacities restrain their attempts to improve their internal process. Besides, the barriers from the unstable security conditions decrease the private companies' potentials to expand their activities and develop their staff. Instead, the companies are prone to avoid visibility and involve in informal practices. Finally, the academic and professional institutions have a minimal contribution to identify the construction industry's needs and to provide relevant practices and standards.

4.5 The core category

In the early stages of the data collection, the majority of interviewees asserted challenges related to the coordination with entities from the government acting as project providers or clients. Additionally, obstacles such as the lack of cooperation due to bureaucratic practices and corruption restrain their efforts to develop risk management process. Moreover, other participants argue that a detailed process for risk management is not needed or infeasible in their situation, considering the country's risks specifics and complexities associated to construction projects in Iraq. However, during the data analysis phase, we categorize the impacting factors on RMP practice into several categories, and relate them to each other, to facilitate identifying the core category that influence all the other categories considering the internal and external environments of the companies. In result, "Registration, Procurement, and Investment Regulations" is emerged as the core category whose influence explained by the other categories of barriers. More explanation regarding the influence of the core category follows in section 5.2 Story Line.

5 Chapter Five: Discussion

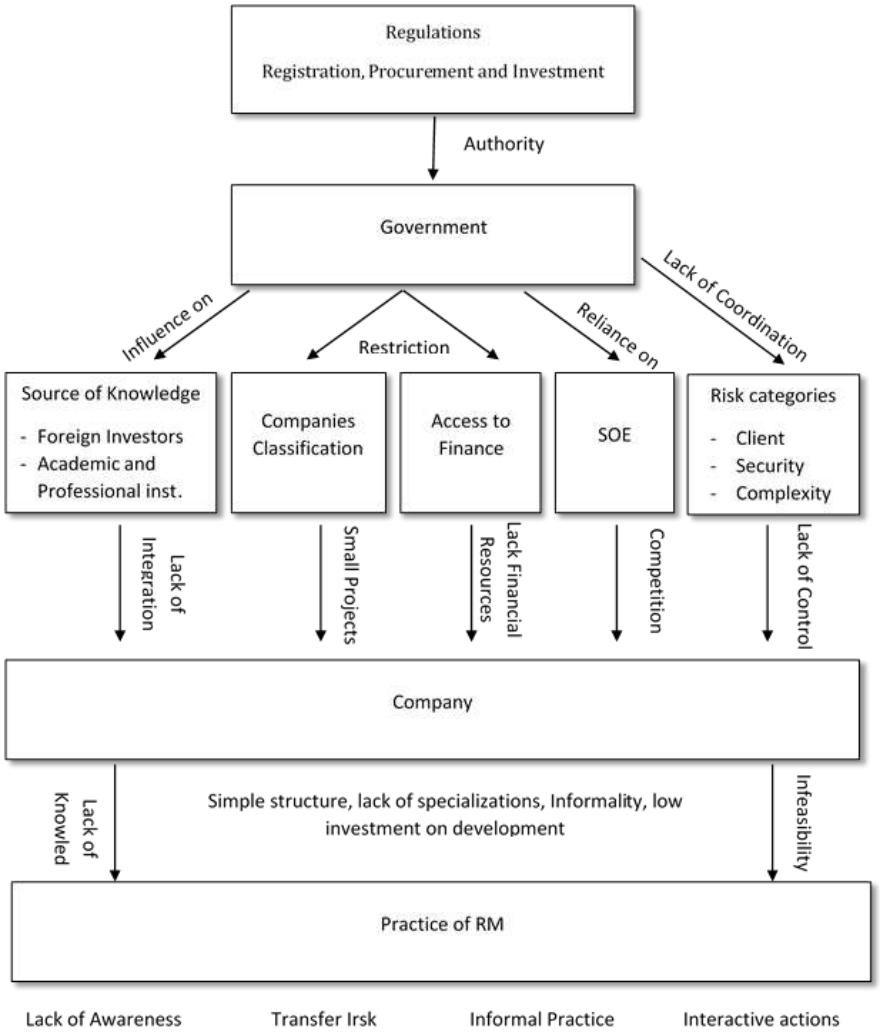
5.1 Introduction

In this chapter, we present the process of theory generation that according to McCaslin & Scott (2002) consists of three aspects: inspecting the consequences of the evolving theory, explaining its meaning, and presenting its formal statement. Inspecting the consequences of the evolving theory presented by clarifying the story line of the theory evolvement and verifying its results by the data. Next, we explain the meaning of the emerged theory positioning its hypothesis in relation to the existing theoretical literature, and elaborate its impact and application in the social domain. Then, the evolved theory presented in a precise statement. Finally, we provide recommendations and topics to be considered in future studies.

5.2 Story Line

To explain the influence of the core category on the different dynamics affecting the contracting companies' behavior towards RMP practice, we explain how each individual regulation may create the project context, in which RMP is inapplicable. In general, the regulations connected to the companies Registration, Public Procurement, and Investment create a construction market dominated by the government. The government, as sole project supplier and beneficiary of the majority of the construction projects, plays an essential role in developing the policies that integrate risk management in the bidding process, contract management, and quality standards. In result of the regulations and the governmental policies, governmental entities have a longer hand in managing risk in the project than the contractor has. They (regulations) additionally, influence the internal design of the construction companies by adding challenges towards developing innovation, knowledge management, and other capacities required to develop a detailed process for RM. Figure 13, elaborates the interpretation of the Data and the evolvement of the Theory.

Figure 5: The Interpretation of the Data and the Evolvement of the Theory



As explained in the section (4.4.2 Business Regulations), the Registration Regulations sorting the contracting companies into classes ranging from the 5th class (the lowest rank) up to the 1st class companies, in addition to the Premium class (The highest rank)that is not frequently awarded to companies. According to this classification, the majority of the contracting companies (from 1st to 5th Class) are eligible to apply for government projects limited up to 15 billion Iraqi Dinar (approximately 13.6 M USD. Based on the participants' experience, such projects are commonly managed by project management team consist of 4 to 14 members, excluding the operational staff working on the projects activates (as explained in section 4.3.1 Structure and Processes), while the operational staff may reach a level of up to 500 workers (see section 4.2.1.2.1 Project Size and Complexity). Consequently, the current context of projects and the internal structure of the contracting companies, and considering the shortage of the project supply, the contracting companies lack the capacities of providing specialized staff in RM; in addition, the complexities resulting from project size, project workers size, and the project technologies do not encourage a formal process of RM.

Next, the laws and regulations govern the Public Procurement exclusively authorize the SOE, the ministries, and the provincial authorities to announce, contract, and manage the government projects. The collected data shows that the pricing method required in the government tenders is based on detailed prices for the construction materials and the direct cost associated with project activities, while the indirect cost linked to, for instance, the managerial and logistics are commonly added as a margin. Moreover, contract development frequently follows pre-defined contracts do not allow inputs and negotiation from the bidders. Based on the contract and the local standard of the civil engineering "The General Conditions", the contracting companies have very limited opportunities to neither negotiate the project budget and duration nor to control the time and the cost of the activates. As the contractor-client relationship involves complicated processes of quality assurance, change management, as well as the provision of the project payments. In result, the missing coordination between the contractors and the clients from government restrain the early Risk Identification during the tender management, Risk Planning during the contract management, and Managing Risk plans during the project execution phase. Consequently, the contracting companies are not motivated to take the responsibility of managing risk without a coordination with project sponsor that traditionally possesses the major role on the contract.

Lastly, the Investment Regulations deprive the private companies of opportunities to develop their own projects due to a complicated process to provide the Investment License, Access to Finance and Land Provision. It also, in addition to the unstable security conditions, adds challenges to the foreign investors to invest in Iraq. The influence of the investment regulations on the RMP practice explained by missing the potentials to involve in large and complex projects and to have better control on project management. Involving such untypical projects may include higher complexities and require a more detailed process to handle RM. Investment incentives for foreign investors additionally provide possibilities of exposure to RM experiences practiced by advanced companies in result to a possible joint work. In addition, attracting foreign investors provides learning opportunities and development programs offered by prospective professional institutions that would be encouraged to invest in the country.

The other categories of barriers such as corruption, client dominance, shortage of project supply, low profitability, lack of control due to security-related risk, the simple structure, the lack of knowledge, and the lack of knowledge sources are rather consequences, to the weak legal framework in the three areas explained by the core category, than a barriers in themselves. As reform to the regulations' deficiencies explained by the current theory would provide solutions to all the mentioned barriers to RMP adoption.

5.3 The Theory Impact

The uniqueness of the findings presented by the current study is represented by the provision of a first interpretation to the Iraqi context concerning Risk Management practice in the construction projects. Considering its unique methodology comparing with the similar studies conducting in the neighboring countries and some other

developing countries, the grounded theory allows comprehensive explanation to the research problem rather than merely identifying individual variables traditionally collected relying on survey method.

The results of the current study identify the lack of cooperation between the contractor and the client, security-related risk, and contractual issues as most influential risks in the Iraqi context. Those categories of risk are significant and ignoring them frequently lead to project failure. Thus, the emergent theory suggests that RMP is required to mitigate those major types of risk in addition to the other risks listed by the project participant regardless of the low complexity of project explained by size and technology. The high failure of construction project frequently reported by the international organization support this hypothesis.

Further, the current theory concludes that the motives of RMP practice are associated to project complexities (risk categories), the authority granted during initiate the project, the continuous coordination and cooperation between the project stakeholders, the capacities offered by the company to the PM team, as well as the availability of the RM knowledge sources. The combination of the mentioned variables will decide the sophistication level required for the RM strategies. In this way, the current theory highlights the dynamics of several variables on RMP application than on the influence of one or few variables individually. For instance, the lack of awareness and skills on the organizational level has not always been the reason behind the application of RM, when a situation does not require such knowledge and skills at all, or when the project manager lacks the required authority to plan, manage, and control.

Finally, comparing with the similar studies the concept of the core category provides a focus on the essential theoretical concept that explains all other emergent concepts. The key benefit of such tool facilitates a clear solution to the research problem. As providing solutions to the core category imply a solution to all other categories identified by the research. Consequently, suggesting legal reform to the relevant regulations on the national level represents an essential task towards mitigating risk in construction projects. This fact explains the low impact of huge budget dedicated by the government and by the international funders to develop practices such as project management and corporate governance.

5.4 Theory Statement

The regulations, which govern the contracting companies- Registration, Public Procurement, and Investment-, represent the core category of barriers to RMP adoption by construction companies in Iraq. The construction projects in Iraq encounter several categories of risk mostly including the lack of cooperation between the contractors and clients from the government, security-related risk, and contractual issues. The regulations of Registration, Public Procurement, and Investment cause a combined effect of several variables that make the practice of RMP infeasible. The variables influencing the Practice of RMP include project complexities -Risk categories, the authority granted to the project manager, contractor-client integration, the organizational capacities, and the availability of the RM knowledge sources. The combination of the

influence of these variables also affects the sophistication level of RMP required by a project. Lastly, a legal reform of the relevant regulations on the national level represents an essential opportunity for mitigating risk in construction projects.

5.5 Recommendation for future studies

We recommend further studies to analyze the internal and external environment of the construction companies, as extending contributions to this research, as follows:

1- Analyze the existing regulations and governmental policies related to companies' registration and classification and public procurement system. The prospective study needs to identify the risks imposed on the contracting companies relying on imputes from professional and legal advisors related to this industry.
2- To conduct a formal maturity assessment of Project Management and Risk Management practices in the construction companies in Iraq.
3- To analyze the market needs for construction projects including details about the beneficiaries' priorities.
4- To analyze categories of the fiscal budget in Iraq and the mechanism followed to develop it, highlighting the trend of spending on construction for a certain period.
5- To investigating proposals on investment projects developed by private companies and identifying their challenges.
6- To investigate challenges encountered by foreign investors to invest in Iraq.
7- To investigate challenges encountered by the Public universities, private universities, and professional organization to develop PM and RM practices in Iraq.

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